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ON THE JAPANESE SPECIES OF THE GENUS DRYOPHTHORUS SCHÖNHERR, WITH DESCRIPTIONS OF TWO NEW SPECIES

(COLEOPTERA : CURCULIONIDAE)

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Up to the present time, only a single species of the genus *Dryophthorus* Schönherr has been known to occur in Japan. In this paper will be included in the fauna three species, two of which are new to science, and the rest new to Japan. Holotypes of the new species are deposited in the Entomological Institute, Hokkaido University.

Before going further, I wish to express my hearty thanks to Prof. C. Watanabe for his kindness in continuous direction and reading through this manuscript. Sincere thanks are also due to the following gentlemen who kindly offered the invaluable material: Dr. M. Chûjô, Mr. H. Hasegawa, Dr. N. Hayashi, Mr. H. Ichihashi, Dr. M. Inouye, Dr. M. Kabe, Mr. Y. Katô, Dr. H. Kôno, Dr. T. Kumata, Dr. Y. Kurosawa, Dr. K. Morimoto, Dr. T. Nakane, Dr. T. Nakashima, Dr. H. Ôhira, Mr. T. Oku, Mr. Y. Shutô, Mr. I. Tateyama, Dr. K. Umeya, Mr. A. Yoshida, etc. Furthermore, I am deeply indebted to Dr. M. Okada for his kindness in preparing the photographs used herein.

Genus ***Dryophthorus*** Schönherr

Dryophthorus Schönherr, 1826, Curc. Disp. Meth.: 332; Hoffmann, 1954, Faune de France 59: 745 & 746; Voss, 1955, Mitt. Münchn. Ent. Ges. 44/45: 185. [Type-species: *Curculio lymexylon* Fabricius= *Curculio corticalis* Paykull].

Tetratemnus Wollaston, 1873, Trans. Ent. Soc. Lond.: 7, 9, 434, 442 & 507. [Type-species: *Tetratemnus sculpturatus* Wollaston]. **Syn. nov.**

This genus belongs to the tribe Dryophthorini of the subfamily Rhynchophorinae, being essentially characterized by the conspicuously 5-segmented tarsi in combination with the 4-segmented funicle. I am much inclined to the opinion that *Tetratemnus* should be sunken as a synonym of *Dryophthorus*, because no definite differences could be found between them.

Key to the species

1. Elytra with a well-defined subapical carina broadly explanate and reflexed. . . . . 2.
– Elytra without such a subapical carina. . . . . 3.
2. Elytra fusiform, much broader across humeri than the broadest part of prothorax; each elytron subtruncate at apex; prosternal process half as broad as mesosternal one, which is 2/3 as broad

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as middle coxa. . . . . *corticalis* (Paykull).

– Elytra subparallel-sided, as broad across humeri as the broadest part of prothorax; each elytron rounded at apex; prosternal process more than half as broad as mesosternal one, which is as broad as middle coxa. . . . . *sculpturatus* (Wollaston).

3. Eyes lateral, more broadly separated below than above; lower distance between eyes much broader than prosternal process; rostrum twice as long as basal breadth; intervals of elytra as broad as striae. . . . . *japonicus*, sp. nov.

– Eyes ventro-lateral, more narrowly separated below than above; lower distance between eyes as broad as prosternal process; rostrum 2.5 times as long as basal breadth; intervals of elytra half as broad as striae. . . . . *ocularis*, sp. nov.

1. ***Dryophthorus corticalis*** (Paykull)

Curculio corticalis Paykull, 1792, Monogr. Curc.: 41.

Dryophthorus corticalis: Reitter, 1898, Verh. Naturf. Ver. Brünn 37: 5; Winkler, 1932, Cat. Col. reg. palaearc. 13: 1528; Csiki, 1936, in Junk, Col. Cat. 149: 112; Hoffmann, 1954, Faune de France 59: 746; Voss, 1955, Mitt. Münchn. Ent. Ges. 44/45: 185; Folwaczny, 1960, Ent. Blätt. 56: 120.

Curculio lymexylon Fabricius, 1792, Ent. Syst. 1 (2): 420.

Tetratemnus sculpturatus: Kôno, 1938, Ins. Mats. 12: 144, (nec Wollaston).

Rostrum about twice as long as basal breadth, 4/5 as long as prothorax. Elytra broadly divergent at apex in dorsal view; intervals V and VII united on declivity, thence forming carinate subapical margin. Length[1], 2.5–3.2 mm.; breadth, 1.0–1.3 mm.

Specimens examined: 2 exs., Toyotomi, Hokkaido, 5. VIII. 1955, I. Tateyama leg.; 1 ex., Antaroma, Hokkaido, 16. VII. 1955, M. Konishi leg.; 1 ex., Maruyama, Sapporo, Hokkaido, 8. VII. 1951, M. Konishi leg.; 8 exs., Jôzankei, Hokkaido, 3. V. 1955, from *Abies sachalinensis*, M. Konishi leg.; 2 exs., Jôzankei, 21. VII. 1955, M. Konishi leg.; 1 ex., Chitose, Hokkaido, 27. VII. 1955, M. Konishi leg.; 2 exs., Shikotsu-kohan, Hokkaido, 25. VIII. 1957, M. Konishi leg.; 8 exs., Tarumae-san, Hokkaido, 5–6. VIII. 1954, from *Picea jezoensis*, T. Nakashima & M. Konishi leg.; 1 ex., Hakkôda-san, Aomori-ken, 11. VIII. 1956, K. Baba leg.; 2 exs., Sarukura-onsen, Aomori-ken, 14. VII. 1953, Y. Shutô leg.; 1 ex., Yashikidai, Iwate-ken, 19. VII. 1954, T. Kumata leg.; 1 ex., Takizawa-tôge, Fukushima-ken, 14. VIII. 1948, Y. Kurosawa leg.; 3 exs., Nasu, Tochigi-ken, 3. XII. 1950, H. Yuasa leg.; 2 exs., Tsukuba-san, Ibaraki-ken, 27. IV. 1934, A. Yoshida leg.; 2 exs., Takao-san, Tokyo, 24. VI. 1914, E. Gallois leg.; 13 exs., Takao-san, 6. V. 1917, E. Gallois leg.; 1 ex., Takao-san, 8. IV. 1953, Y. Kurosawa leg.; 1 ex., Asakawa, Tokyo, 23. IV. 1950, H. Hasegawa leg.; 5 exs., Ôyama, Kanagawa-ken, 26. IV. 1949, N. Hayashi leg.; 1 ex., Ôyama, 29. IV. 1950, N. Hayashi leg.; 1 ex., Ôyama, 3. V. 1953, K. Nishikawa leg.; 1 ex., Dando-yama, Aichi-ken, 9–11. VII. 1953, H. Ôhira leg.; 6 exs., Mie Univ. Forest, Mie-ken, 1. VII. 1957, H. Ichihashi leg.; 3 exs., Kibune, Kyoto, 22. IV. 1952, F. Takahashi leg.; 4 exs., Kuishi-yama, Kôchi-ken, 27–28. III. 1954, from *Abies firma*, K. Morimoto leg.

Host plants: *Abies firma* Siebold et Zuccarini; *Abies sachalinensis* Masters; *Picea jezoensis* Carrière.

Distribution: Europe; Caucasus; Japan (Hokkaido; Honshu; Shikoku).

This species is new to Japan. In the specimens examined the subapical margin of the

1) Measured excluding head and rostrum.

elytra is rather variable in form.

2. ***Dryophthorus sculpturatus*** (Wollaston), comb. nov.

Tetratemnus sculpturatus Wollaston, 1873, Trans. Ent. Soc. Lond.: 11; Roelofs, 1875, Ann. Soc. Ent. Belg. 18, C.R.: 133; Lewis, 1879, Cat. Col. Jap. Archip.: 24; Schönfeldt, 1887, Cat. Col. Jap.: 153; Winkler, 1932, Cat. Col. reg. palaearc. 13: 1529; Csiki, 1936, in Junk, Col. Cat. 149: 114.

Head with a slight postocular constriction far distant from eyes, the distance about as long as breadth of eye in dorsal view. Rostrum less than twice as long as basal breadth, 3/5 as long as prothorax. Elytra slightly divergent at apex in dorsal view; intervals raised posteriorly; interval V separated from carinate subapical margin which is formed by VII. Length, 2.5–2.8 mm.; breadth, 1.0–1.1 mm.

Specimens examined: 2 exs., Manza, Gumma-ken, VI. 1951, M. Kabe leg.; 10 exs., Haruna-san, Gumma-ken, 23. VII. 1954, M. Kabe leg.; 1 ex., Meguro, Tokyo, 5. II. 1951, from *Pinus densiflora*, Y. Katô leg.; 1 ex., Ônuma, Kumano, Wakayama-ken, 23. X. 1951, T. Nakane leg.; 2 exs., Miyake-jima, Izu Islands, 18. VII. 1953, from *Pinus Thunbergii*, K. Umeya leg.; 1 ex., Hachijô-jima, Izu Islands, 14. VIII. 1948, from *Pinus Thunbergii*, M. Konishi leg.; 2 exs., Hachijô-jima, 8–10. VIII. 1949, from *Pinus Thunbergii*, K. Umeya leg.; 2 exs., Jinzenji, Kôchi, Kôchi-ken, 13. VIII. 1954, K. Morimoto leg.; 2 exs., Ashizuri-saki, Kôchi-ken, 17. VII. 1937, A. Yoshida leg.; 1 ex., Atago-yama, Fukuoka, Fukuoka-ken, 19. IV. 1953, from *Pinus densiflora*, K. Morimoto leg.; 5 exs., Chiran, Kagoshima-ken, 15. VIII. 1955, from *Pinus Thunbergii*, S. Ishikubo leg.; 3 exs., Tanegashima, 20. VIII. 1957, S. Ishikubo leg.

Host plants: *Pinus densiflora* Siebold et Zuccarini; *Pinus Thunbergii* Parlatore.

Distribution: Japan (Honshu; Miyake-jima & Hachijô-jima, Izu Islands; Shikoku; Kyushu; Tanegashima); China.

3. ***Dryophthorus japonicus***, sp. nov.

Piceous, slightly tinged with red, opaque; antennae reddish brown; tarsi and tibial unci yellowish brown; derm partly incrustate.

Head subconical, 2/3 as long as broad; vertex rather densely punctate, the punctures becoming larger anteriorly; interocular area somewhat narrower than base of rostrum; eyes lateral, depressed, composed of about 30 facets, somewhat more broadly separated below than above. Rostrum about twice as long as basal breadth, 3/4 as long as prothorax, subparallel-sided (apart from usual angular projection formed by lower edge of scrobe), dilated near apex, almost straight in lateral view; dorsum rugosely punctate except subapical area smooth; antennae inserted at basal 1/4. Prothorax about as long as broad, subtruncate at base, arcuate on sides, broadest at middle, rather deeply constricted near apex, the constriction being traceable across dorsum; dorsum convex, coarsely and densely punctate. Elytra 1.8 times as long as broad, about twice as long as prothorax, about as broad at base as the broadest part of prothorax, hardly projecting near base, almost parallel-sided from near base to basal 1/3, thence gradually narrowed to apex rounded; intervals about as broad as striae on disc, somewhat costate, more raised posteriorly, with a row of small punctures; intervals V and VII united on declivity, thence narrowly elevated and

forming subapical margin, to which I–III reach respectively. Prosternal process 2/3 as broad as mesosternal one, which is a little narrower than middle coxa. Length, 2.2–3.2 mm.; breadth, 0.8–1.2 mm.

Holotype: Gotemba, Shizuoka-ken, 31. III. 1957, from *Cryptomeria japonica*, N. Hayashi leg. Paratypes: 12 exs., Gotemba, 31. III. 1957, from *Cryptomeria japonica*, N. Hayashi leg.; 1 ex., Aoyama, Tokyo, 25–26. V. 1948, T. Nakane leg.; 1 ex., Takao-san, Tokyo, 24. VI. 1914, E. Gallois leg.; 1 ex., Takao-san, 6. V. 1917, E. Gallois leg.; 1 ex., Asakawa, Tokyo, 22. IV. 1950, A. Yoshida leg.; 1 ex., Kiyosu, Aichi-ken, 4. I. 1955, T. Kubota leg.;

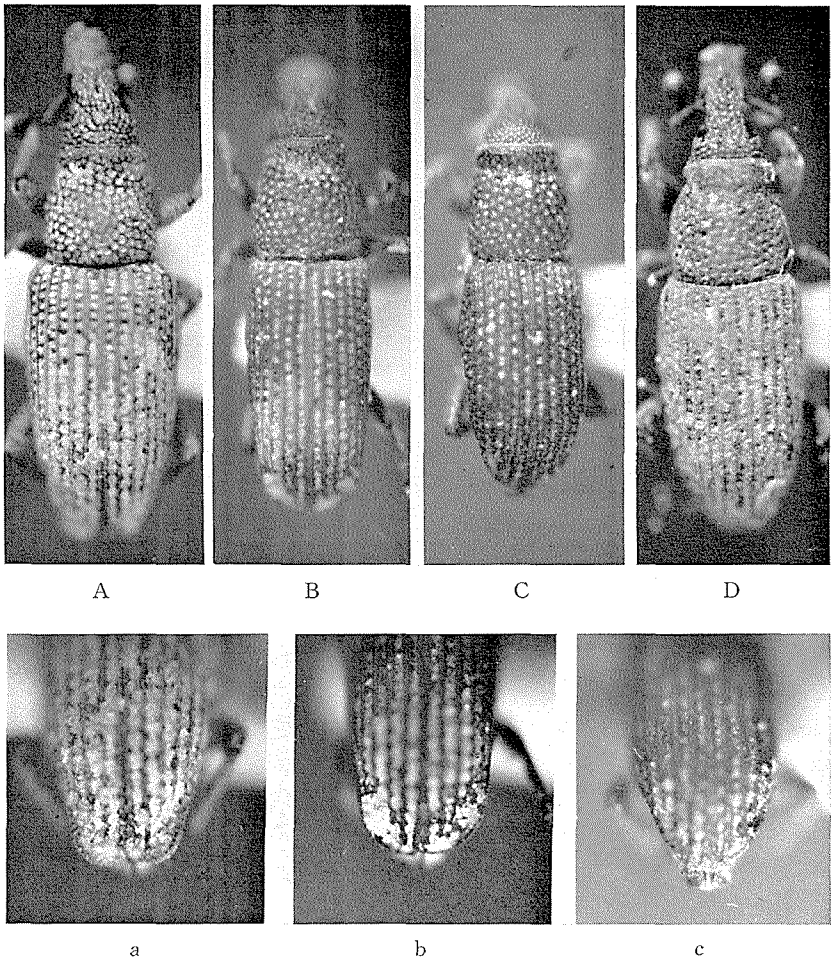

Fig. 1. A: *Dryophthorus corticalis* (Paykull) (locality: Jôzankei, Hokkaido), dorsal aspect; a: same, apex of elytra; B: *Dryophthorus sculpturatus* (Wollaston) (locality: Kôchi, Shikoku), dorsal aspect; b: same, apex of elytra; C: *Dryophthorus japonicus*, sp. nov. (paratype; locality: Asakawa, Tokyo), dorsal aspect; c: same, apex of elytra; D: *Dryophthorus ocularis*, sp. nov. (holotype).

1 ex., Hira-san, Shiga-ken, 5. VIII. 1955, T. Nakane leg.; 7 exs., Kurama, Kyoto, 17. VI. 1954, T. Nakane leg.; 15 exs., Osaka, IV. 1952, T. Nakane leg.; 1 ex., Nunobiki, Kôbe, Hyôgo-ken, 17. V. 1959, T. Takahashi leg.; 1 ex., Shingû, Wakayama-ken, 18. VII. 1946, S. Osawa leg.; 6 exs., Miyake-jima, Izu Islands, 18–20. VII. 1953, from *Pinus Thunbergii*, K. Umeya leg.; 2 exs., Hachijô-jima, Izu Islands, 15. VIII. 1953, I. Fujiyama leg.; 1 ex., Kôchi, Kôchi-ken, 14. III. 1958, from *Cryptomeria japonica*, M. Kubota leg.

Host plants: *Cryptomeria japonica* D. Don.

Distribution: Japan (Honshu; Miyake-jima & Hachijô-jima, Izu Islands; Shikoku).

This species resembles *Dryophthorus americanus* Bedel, 1885, but differs from the latter by the narrower elytra and the less developed eyes which are more broadly separated below. According to Dr. T. Nakane, many examples of the present species were found from rotten timbers in the earth in the structure of the Osaka Station.

4. ***Dryophthorus ocularis***, sp. nov.

Piceous, opaque; antennae reddish brown; tarsi and tibial unci yellowish brown; derm with greasy incrustation.

Head subconical, a little more than half as long as broad, densely punctate on vertex; interocular area slightly narrower than base of rostrum; eyes ventro-lateral, depressed, gradually narrowed and obliquely elongate downwards, but far distant from fore margin of prothorax at their lower margins, distinctly more narrowly separated below than above, lower distance between eyes being as broad as prosternal process. Rostrum 2.5 times as long as basal breadth, 4/5 as long as prothorax, subparallel-sided, slightly widened towards apex, somewhat arcuate in lateral view; dorsum very closely punctate, subapical area with fine punctures and shiny; antennae inserted at basal 1/4. Prothorax longer than broad (5.1 : 4.7), slightly arcuate outwards at base, subparallel-sided from near base to apical 2/5, thence rather rapidly narrowed to a deep subapical constriction; dorsum rather convex, coarsely reticulate-punctate with large punctures. Elytra 1.8 times as long as broad, about twice as long as prothorax, slightly broader across humeri than the broadest part of prothorax (5.7 : 4.7), almost parallel-sided from near base to basal 2/5, thence arcuately narrowed posteriorly, the apex being subtruncate in dorsal view; intervals about half as broad as striae, rather convex, with a row of short and spatulate setae conspicuous on declivity; intervals V and VII united posteriorly, thence somewhat raised to apex. Prosternal process half as broad as mesosternal one, which is a little narrower than middle coxa. Length, 2.5–2.8 mm.; breadth, 1.0–1.1 mm.

Holotype: Fukushima, Miyazaki-ken, 5. VII. 1953, K. Kôno leg. Paratypes: 2 exs., Fukushima, 5. VII. 1953, K. Kôno leg.; 2 exs., Nishi-nakama, Amami-Oshima, Amami Islands, 2. IV. 1954, T. Oku leg.; 2 exs., Santarô-tôge, Amami-Oshima, 5. IV. 1954, T. Oku leg.; 1 ex., Koniya, Amami-Oshima, 19. IV. 1954, T. Kumata leg.

Distribution: Japan (Kyushu; Amami-Oshima, Amami Islands).

This species is closely related to the preceding species, differing therefrom by the above-mentioned key.